No. 4

Melia Azedarach

A. Jones
{295 Market
{Miss Pease. March 6th 1822

Alexander Jones

admitted March 23d 1822

Melia Azedarach –

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No. 4

An Inaugural Dissertation on The Melia Azedarach or China-Tree, Poison Berry-Tree, Pride of India &c.

Submitted to the Provost, and Medical Faculty of the University of Pennsylvania, for the degree of Doctor of Medicine.

By Alexander Jones of Lexington Georgia. Member of the Philadelphia Medical Society &c.

Philadelphia 1822.

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this essay

To John Redman Coxe. M.D.

Professor of Materia Medica, & Pharmacy, in the University of Pennsylvania. As a testimony of respect, this imperfect essay, is respectfully inscribed, by his most obedient and humble Servant.

The Author.

To N. Chapman. M.D.

Professor of the Institutes, & Practice of Medicine, & Clinical Practice, in the University of Pennsylvania. As a manifestation of regard this essay, is also inscribed, by his most obedient Servant.

The Author.

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Melia Azedarach.

Melia is the name adopted by Linnaeus for this tree, apparently because the leaves resemble those of the Ash, which is doubtless the true μελια of the ancient Greeks. Class and Order, Decandria, Monogynia Nat. ord. Trihilata. Linn. Melia. Sup.

There are five species described in Dr. Rees' New Cyclopædia, but I find only three species mentioned in Nicholsons' Encyclopædia. The following botanical description, of the species that flourishes, in the U. States, and the kind I have written upon, is taken from Dr. Rees' New Cyclopædia.

Sp. 1. M. Azedarach, also, here called, Bead-tree Pride of china. H. . Leaves bipinnate, leafets smooth, about five. Leafets ovate, notched, pointed, green above, paler beneath. Flowers lateral, in long, loose panicles. Petals, white, streaked with pink. Fruit oblong of a pale yellow when ripe, of the size of a cherry.

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"In the southern parts of Europe the nuts are threaded for beads* to assist the devotion of good Catholics, for which purpose, they are peculiarly suited, having a natural perforation through them, hence the tree has been called arbor Sancta, and by the spaniards arbol Parayso." Sims. vide Dr. Rees' New Cyclopædia vol. 24, part 1.

Only one species has become naturalized to this country, which is the species above described. It is a beautiful tree that flourishes extremely, well in the southern states, especially in Georgia, and Florida It rises in height to 20 or 25 feet, the largest trees measuring from 1 to 1½ foot in diameter. It does not bud until the middle of April. It flowers about the 15th or 20 of May, or sooner, its blossoms affording a delightful odour. From the lateness of its flowering it never fails of bearing an abundant crop of berries

* Hence the name of bead-tree. The berries of the kind that grows in this country, do not have this natural perforation.

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or fruit, which remains on the tree until they are displaced by the ensuing flowers. It is cultivated in all the Cities and villages of Georgia, for the shade it affords, as well as to ornament the streets: and no tree that is planted for these purposes, seems better calculated to fulfil them, than this. The pleasantness of May appears to be improved by the presence of this tree, at the same time its spreading branches and rich foliage, seems to attract each passing Zephyr, and to invite the weary passenger to recline beneath its bowers, secluded from the Sun's scorching rays. It is a tree which though not very lofty, has a majestic appearance: its leaves being of the richest and deepest green, its branches regular and spreading, it truly deserves the name of the Pride of India.

It is a native of the East Indies, and was originally brought from that country to the U. States. It is said to grow spontaneously in the former place, as also in Persia. At what particular period it was brought to this country, or by whom, is as yet unknown

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or uncertain. But it is evident, that its first appearance in Georgia was about the time of the first settlements - made in that state by Genl. Oglethorpe: ~~or~~ very soon after. From this circumstance, it seems probable that it might have been introduced by that gentleman or by his agency. At the time Savannah was laid off, its founders might have foreseen, the inconvenience that would result, from the heat in the summer months: as the soil being sandy is calculated to increase the heat; in consequence of which without something to shade the ground the heat would be intolerable; Savannah and above that, was the part of country where Genl. Oglethorpe made his first settlements. This opinion is also strengthened from the fact, that those trees are much larger in the neighbourhood, of Savannah than in any other part of the state. Might not this tree have been introduced by this gentleman, and since his time gradually extended to

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Medicinal Properties. This plant is an Anthelmintic of the most active kind, which seems to depend upon a narcotic principle inherent in it. Of its narcotic properties we have the most conclusive evidence. Dr. Barton in his Collections relates a case, where he gave some of the bark of the root, in the form of a saturated decoction, to an adult, which he states, "occasioned some confusion of head and trembling of hands." Notwithstanding these effects there was a number of worms discharged."*

Doctr. Abbott of Georgia, states that a strong decoction of the bark, was given by a man, to two of his children, one six years, and the other four years old, in doses of a quart, to each, in the twenty four hours; he was called, to see them and found their eyes perfectly natural except the

* Vide Bartons Collections Part. 1. Page 62.

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want of vision in them, and contractility in the pupil. The optic nerve seemed perfectly paralized for even the direct sun beams, on it, excited no perception of light. They both expired in a short time after he saw them. It is also stated that birds after filling their Craws with the berries, fall down and are easily caught.

Dr. Barton whose experience must have been but limited with this plant, is disposed to doubt its narcotic quality. We find that in his Collection he proposes the following question, viz "Is the Melia a narcotic or poisonous vegetable?"? This I conceive to be a useless question: because their can be no nice distinction between a narcotic and a poison; as some of our most active narcotics, are at the same time poisonous. For instance, Opium, Datura Stramonium, Nicotiana, Cicuta, Belladonna, &c. and many others, are strong narcotics; and at the same time if given in an undue quantity prove violently poisonous

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and destructive to animal life. We further find that all writers on the Materia Medica, class all narcotics under the head of poisons; so that if it is admitted to possess one property, it contains both, but more especially the narcotic. What more clearly proves it to be a narcotic, is, its having the same effects upon the system as some of the most active medicines, of the narcotic class. For instance the Datura Stramonium affects the pupil of the eye pretty much in the same manner as the Melia: it brings on trembling, convulsions, and delirium in the same way; but with some more rapidity than the Melia And the same might be stated with respect to many other articles, especially the Cicuta, which brought on weakness and trembling in the hands and knees of Socrates.

The only difference that exists in these articles, is that they are much more active in a smaller dose than the Melia.

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I think the above stated facts go incontestably to prove it to be a narcotic. Dr Barton states that the "people of Carolina ascribe the effects that the berries have upon birds, merely to distention" If this were the case, cherries, corn, and many other substances would have the same effect; but it is well known that these birds can eat as much of those articles, as their craws will contain, without experiencing any inconveni=ence.

The effects generally occurring when too large a dose is given, are the following viz. The pupil of the eye enlarges and becomes fixed, and wants contractility, the pulse at first rises; but in a short time sinks, a trembling of the hands and legs comes on, delirium, or Sub. Subtus tendinum, and probably if carried much farther, death would ensue.

Though no danger can be apprehended of sudden death, by this medicine; yet there can be

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no doubt that too large quantities of it, would occasion death. Experience has not pointed out any corrector of its deleterious effects, nor does it seem to require one as it would take such large doses of the medicine to induce those effects, it never will be taken unless through design, or extreme ignorance. But I think it fully probable, should its deleterious effects, in any way be brought on, that it would yield to the common antidotes, used in similar cases from other poisons; particularly emetics.

The urine does not appear to be much affected, except when it is given in large doses, it turns the urine of a deep red, and causes purging. Whether it is owing to the purgative quality of the medicine that it operates, or merely acts by first destroying the worms, and they acting as a contraneous substance, induce purging, I am unable to say; but think the first probable?

The saturated decoction seems to be the most convenient, as well as the most efficacious, mode

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of exhibiting it, when first given the dose should be small, at least moderate, like medicines of a similar nature and gradually increased. A Tea cup-ful is a common dose for an adult, for a child 2 or 3 years old a table spoonful is a good dose. This may be increased, if no ill effects are observed to ensue, to 2 cupsful for an adult, and two table spoonfuls for a child. But if the eyes appear glassy, and the pupil wants contractility, it should for a while be wholly suspended, or very much diminished in dose. The infusions of the different parts of the tree, are neither so strong, nor so efficacious, as the decoction of those parts.

The Tinctures of those parts are much stronger than either the infusions or decoctions, but then they are not so safe, nor so agreable, although they operate in a much smaller dose. The berries are least narcotic (as it may be termed) of any part of the tree, as they are frequently eaten with impunity

by children: but when taken in large quantities in either of the forms before mentioned, they manifest the same effects upon the system, as the other parts of the tree. The leaves appear to maintain a middle rank between the bark of the tree and berries

The dried bark of the root, pulverized, and exhibited in conjunction with calomel, in proportion of about 30 or 40 grs of the former to 10 or 15 of the latter proves a good Anthelmintic. Melia appears to be equally good in all kinds of worms, but more particularly in Lumbrici, and ascarides.

Dr Anthony of Georgia, states, in a letter to me that he has used the Melia in its different forms, for several years, with the most unequivocal success in all the varieties of worms. In order to render it less offensive to children, it may be given in the form of an Extract, made into pills,

Dr Grimes of Savannah, thought that the bark gathered, in the spring, was more liable to produce unpleasant effects, than when collected at any other

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season of the year. The fall seems to be the best-season for collecting it for use; It may be kept in the shop for a considerable length of time without its sensible properties being diminished

The bark when dried has a pleasant bitter taste. The berries have rather a sweetish taste. The bark of the tree collected in July lost by exsiccation, in ℥i, four drachms, or ℥ss. The bark of the root collected at the same time, lost by exsiccation in ℥i, five drachms: more than half its weight.

From its effects when given, on the eye, in dilating the pupil &c. it would appear that it might become useful in diseases, of that organ And as a narcotic become useful in some cases, where the stramonium is used. As to this point and its utility in many other diseases, I shall leave for future experience to determine.

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many planters are in the habit of beating from the trees, every morning quantities of these berries for their Hogs, which keep fat on them and free from disease. It would seem that if this fact was generally known, it would become a tree of great value to the southern planters, who raise much stock of this kind, as feeding them on this fruit would save a great deal of grain.

They posess an advantage over every other kind of fruit, in being a never failing crop, and are produced without any trouble of cultivation to the planter. The berries remain on the tree all winter without injury, In years of great scarcity, this fruit would be immensely useful. It resembles in some degree the May Apple (Podophyllum Peltatum), its fruit being a little nutritious; while the other parts of the plant have a medicinal effect, or more active at least. The nourishment of the berries seems to be interposed between the rind and seed, and is of a

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pultaceous nature. The utility of these berries is not confined alone to Hogs, they are also used by many planters both for improving the health of their horses, as well, as, for destroying a well known kind, of worms called, botts, or grubs; which are extremely destructive to horses in the Southern States. A Mr. Smith of Lexington Georgia informed me that he constantly kept a quantity of those berries in his horse trough; and he found by this practice, that his horses were entirely exempt from those insidious worms; and it was remarked by his neighbours, that his horses were much fatter, than their, own. and also less liable to sickness. It is more than probable that if the experiment was made, that this fruit would also be found serviceable, or good food for many other kinds of Stock such as cows, Sheep, &c, and calculated to cure as well as to prevent many diseases to which they are liable, and for which no efficacious remedy is at-

present known. It is stated by Michaux, that in "Persia where this tree grows spontaneously, the pulp of the fruit, is pounded with tallow and is used, as an Antisphorie in cases of Tenia capitis." Dr. Barton observes "that the fruit of this vegetable is employed for furnishing an expressed oil, which grows hard like tallow, and is used for making candles. The wood of the tree makes nice furniture, something resembling the the wood called Spanish Cedar, or Spanish Mahogany, that is used in the Island of Cuba, for ship building. *

* vide Sibbalds Notes and Observations on Georgia.

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Wm. Bacon - New Jersey

admitted March 22d 1822

Medicinal Effects
of
Cold Applications.

An Inaugural Essay on the

Medicinal Effects of Cold Applications

in Disease

Submitted

To the Provost & Medical Faculty

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For the degree of M.D.

by William Isaacson

of the State of New Jersey

1822